The Ethic

Pollution Prevention
The Environmental Ethic of Lancaster County

Public Health Starts Here.

Winter 2005

The P2 Corner

Building Green

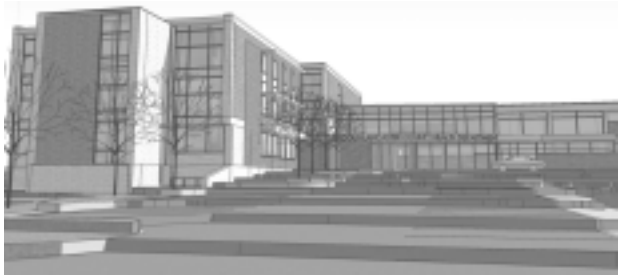
EVERYTHING OLD IS NEW AGAIN:

the role of recycling and reuse in construction

The Lincoln-Lancaster County Health Department (LLCHD) is adding an extension to the existing building. The Clark Enersen Partners, the architectural and engineering firm for the project, has created a design that incorporates several energy saving, environmentally friendly features. These features include a ground source heat pump (also known as a *geothermal heat pump*), sun control devices, the use of natural daylight to supplement the building's interior lighting, and environmentally friendly building materials including paints and adhesives. The design will also involve retrofitting the existing building, which in effect "recycles" it to fit with the current needs of the public and health department employees.

Greg Newport, Principal Architect with The Clark Enersen Partners, says, "The new ground source heat pump system uses the ground's constant 55 degree temperature to moderate building cooling or heating demands." Approximately 130 closed-circuit, 300 foot deep wells were dug in Woods Park. They form a grid, linked together with piping. These wells will be connected to the main mechanical system and water will cycle through them.

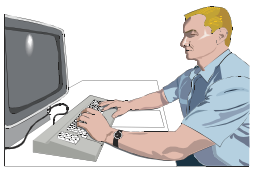
Pumps will circulate water between pipes in the building and the wells. Heat pumps in the building will warm or cool the water (depending on the heating or cooling demands of the building). The water returns to the wells, where the ground will change the temperature of the water back to 55 degrees thus cooling or heating it depending on its temperature. Pumps then return the water to the building where the system repeats the cycle. This type of system is more energy efficient and uses less fossil fuel than a conventional heating/cooling system because it takes advantage of nature's free heat from the ground.



A system of sun control devices will reduce the greenhouse effect of direct sunlight. Vertical and horizontal sun shades and screens on the east, west, and southern exposures—which typically receive the most sunlight—block the summer's direct sunlight and reduce the amount of direct heat entering the building. Similar to awnings, these devices will reduce the need to run air conditioners in those areas of the building most exposed to sunlight.

The building's design allows natural daylight in open office areas and lower level spaces. Windows positioned above workspaces along exterior walls allow natural lighting to penetrate further into the building's interior thus reducing the need for artificial lighting. Reducing the occupants' dependance on artificial lighting will reduce energy costs during daylight hours.

Newport noted that "the building's systems and controls are designed to further ensure energy conservation." For example, an automated



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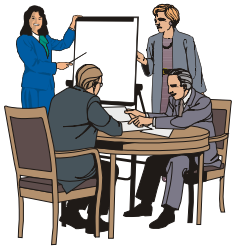
Please circulate this issue among your staff and coworkers.

NOMINATIONS FOR LINCOLN-LANCASTER COUNTY ENVIRONMENTAL AWARDS



HARRY HEAFER, ENVIRONMENTAL HEALTH EDUCATOR II;
PROGRAM COORDINATOR, KEEP LINCOLN AND LANCASTER COUNTY BEAUTIFUL

Nominations are being sought for the 2005 Lincoln-Lancaster County Environmental Awards. Lancaster County residents are encouraged to recognize local efforts to preserve and better the environment by nominating an individual, school, organization or business for an environmental award. The awards recognize local efforts in the following categories:

Pollution Prevention: Preventing pollution and waste from being created; emphasis on toxics reduction.

Waste Reduction and Recycling: Reduction in the amount of waste sent to the landfill.

Water Conservation: Reduction in water use through utilizing water conservation equipment or planting drought tolerant plants.

Cleanup/Beautification: Improvement in an area's visual quality.

Residential/Commercial Development: Reducing waste during construction, utilizing drought tolerant landscaping, energy efficient and green building techniques.

Environmental Education/Awareness: New or unique efforts for providing or supporting environmental education programs; increasing awareness about local environmental issues.

Nomination forms are available by calling 441-8035 or on-line at: *www.ci.lincoln.ne.us/city/health/environ/kllcb/awards.htm*. Nomination forms must be completed and returned by March 16, 2005. The awards ceremony dinner will take place on Friday, April 22 at 7:00 p.m. at the Bryan Hospital Plaza Conference Center, 48th & Cotner.

The Lincoln-Lancaster County Environmental Awards Program is a collaborative project of the Lincoln-Lancaster County Health Department and the Lincoln Public Works and Utilities Department.

O O O

POLLUTION PREVENTION IN THE CAFETERIA

(taken from the USEPA's electronic newsletter, Environmental Protection*)*

NOTE: even if your worksite does not include a cafeteria but only a break room, some of these suggestions might apply to your business.

Our Environmental Tip of the Week is courtesy of Ohio EPA. Don't forget to include the cafeteria in pollution prevention plans.

Use reusable dishes and flatware for special events and daily use. The capital investment can be regained quickly in savings from disposables and in avoided disposal costs.

Linen services are an affordable source of reusable tablecloths, napkins and dishcloths.

Offer corporate coffee mugs or water glasses to employees and visitors to use in place of disposable cups. Encourage your cafeteria to offer discounts to employees who bring their own cups.

Dispense beverages from tanks or refillable bottles instead of individual packages.

Order food supplies in bulk and economy-size packaging.

To subscribe to *EP E-News* or *WWP E-News* visit http://www.eponline.com/enews.html.

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Air Pollution Control Technology Series Training Tool

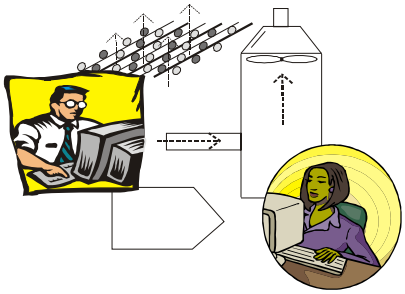
Taken from the USEPA website: http://www.epa.gov/ttn/atw/utrain.html

(Going to the website above will allow you to learn more about technologies available to reduce hazardous air emissions from various businesses and industries. Although not a detailed study, the materials presented can help you identify some of the tools and technologies you might consider installing in your work sites.

There is a hotbutton near the bottom of the webpage that will allow you to download an interactive tutorial. There is another button that will open a screen with a listing of other training tools that are available.)

Air Toxics Website: Training

Air Pollution Control Technology Series Training Tool



What is it?

The Control Technology Series is a self instructional training tool. The training tool is designed to provide a basic overview to those unfamiliar with a variety of air pollution control technologies. The series is broken down into different types of equipment such as:

- wet scrubbers
- carbon adsorption
- incineration
- condensation
- electrostatic precipitators.

Some of the topics covered in the modules are:

- What the different types of devices are
- How they work
- How to tell if they are working correctly
- Causes of decreased performance
- Performance monitoring

Although this training tool is not intended as complete training in the inspection of these devices, it will provide a basic understanding of the different types of devices used. This series is available on CD, videotape (for some technologies) and as an executable file from the web.

The current series consists of the following topics:

- Electrostatic Precipitators
- Incineration
- Carbon Adsorption
- Wet Scrubbers
- Condensation
- Absorbers

  Contains Carbon Adsorption, Condensation, Absorbers, Electrostatic Precipitators, Wet Scrubbers, Incineration

Additional topics will be added to this list as they become available.

How do I get a hard copy?

CDs and videotapes are available via e-mail from:

Donna Rogers at rogers.donna@epa.gov

BUILDING GREEN (CONTINUED FROM PAGE 1)

temperature control system, monitored by a computer, will help reduce energy use throughout the building. Operating much like a set back feature on a home thermostat, this system will be programmed to run during times of peak occupancy. This system will prevent the waste of energy by not over heating or cooling an empty building.

Newport noted that the building will be zoned into separate environmental areas. Typically, each building exposure will require different amounts of energy to achieve and maintain a set temperature. With a single zone system, the usual result is that a majority of the building occupants are uncomfortable and most of the energy is wasted. With a zoned system, each zone will be separately monitored and controlled. Temperatures are set and maintained automatically. For example, prevailing sunlight coming into the southern zones of the building will require a different cooling or heating load than the northern zones. This system achieves a better energy balance throughout the building, uses less energy, and creates more comfortable work environments.

When finished, the new building annex will not have the familiar new paint or new carpet smell. That smell is caused by the evaporation of Volatile Organic Compounds (VOCs). Newport notes, "The name tells you those chemicals are not healthy for you." Many of the materials used for the addition will contain no or low amounts of VOCs and are nontoxic. The paints, stains, and adhesives used in the carpeting and for other applications throughout the building are water-based and will be environmentally friendly. They are also healthier for the building's occupants.

Many of the materials used in the building will be made from recycled content or will be recyclable at the end of their life-spans. For example, the carpet that will be installed contains recycled material and is recyclable. At the end of its life it will be recycled, completing a sustainable cycle from start to finish. Also along that line, Newport reported that "most steel used in the United States today is made from a high percentage of recycled material and is recyclable."

Materials that are not made of recycled content will be made of natural, nontoxic materials. For example, tiles used in the main lobby are made of natural clay.

The existing building will be retrofitted with many of these sustainable innovations and will be connected into the new geothermal system. Newport said, "we are, in effect, recycling the current building. The economic benefits of recycling the building means that the city will save money in the long term by reducing the life-cycle cost of the existing facility."

Newport also reported, "We will require the contractor to recycle construction waste. Construction waste has a significant environmental impact. Recycling, when done properly, is something that the contractor can do without adding a significant amount of cost to a project." Scrap metals—including aluminum and steel—drywall, cardboard, wood pallets, and other materials will be placed in collection bins. "This recycling effort reduces the impact that this building has on the environment by keeping tons of waste out of the landfill," according to Newport.

By using building materials with recycled content, reusing existing systems and structures, using a high efficiency mechanical system, and with an overall reduction of energy demands, the new annex truly proves that green design is achievable. The addition to Health Department building is a public project that has positive impacts to the environment and occupants of a building. Sustainable (or green) design protects human health and the environment while reducing future costs and expenses. Recycling and reuse proves that everything old can be new again.

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http://www.ci.lincoln.ne.us/city/health/environ/pollu/

The Ethic is published quarterly by the Lincoln-Lancaster County Health Department and is distributed to Special Waste Permit holders and other businesses in Lincoln and Lancaster County.

For more information or for P2 technical assistance, call 441-8040.

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